Elsevier Editorial System(tm) for Journal of Endodontics

Manuscript Draft

Manuscript Number: JOE 15-1245

Title: Influences of Music on the perception of anxiety during endodontic treatment: a randomized study.

Article Type: Clinical Research

Keywords: anxiety, endodontic therapy, sedation

Corresponding Author: Dr. Valentina Giuliani, Ph.D.c.

Corresponding Author's Institution: University of Florence

First Author: Luca Di Nasso, PhDc

Order of Authors: Luca Di Nasso, PhDc; Riccardo Pace, DMD; Andrea Nizzardo; Gabriella Pagavino, Prof; Felicita Pierleoni, DMD; Valentina Giuliani, Ph.D.c.

Manuscript Region of Origin: Europe & Central Asia

Abstract: Patients undergoing endodontic therapy often have severe perioperative and intra-operative anxiety, which may lead to increased perceptions of pain and vital sign instability throughout treatment. The purpose of this study was to test the influences of music, as non-pharmacological adjuvant, in term of significant changes for Systolic Blood Pressure (SBP), Diastolic Blood Pressure (DBP) and Heart Rate (HR) before, during and after endodontic treatment, in a population with different levels of anxiety assessed with the Corah Dental Anxiety Scale (DAS).
Methods: A total of 100 patients were recruited in the present study; before starting the endodontic treatment, the interviewer administered the DAS to the participants, to assess the base line level of anxiety. Patients were randomly divided in two groups: the first one listened to the music and the second one did not. Before, during and after the endodontic procedures the vital signs (diastolic and systolic blood pressure and heart rate) were recorded. Results were collected and statistically analyzed.
Results: Direct contrasts between patients listening or not listening to music showed that all the measured vital signs decreased considering the overall period (during and after the canal therapy) in the group of patients listening to music ($p < 0.05$).
Conclusion: This study shows the effects of music therapy on vital values and on subjective perception of anxiety during endodontic therapy. Music and medicine always work together; the soothing effects of sounds and musical frequencies make this union an extraordinary tool of synergistic care.
Music therapy is a valid non-pharmacological adjuvant to anxiety perception in endodontic therapies.

Title page

Full name of each author: Luca Di Nasso[1], Andrea Nizzardo[2], Riccardo Pace[1], Felicita Pierleoni[3], Gabriella Pagavino[1], Valentina Giuliani[1].

Departments: 1 Department of Endodontics, University of Florence; 2 Department of biostatistics, University of Milan; 3 Department of Cranio-Mandibular Disorder, University of Florence.

Corresponding author: Valentina Giuliani University of Florence Via del Ponte di Mezzo 46/48 Florence 50127 Italy. Telephone number 00393395437362, fax number 0039055321144, dr.v.giuliani@gmail.com

Influences of Music on the perception of anxiety during endodontic treatment: a randomized study.

Introduction

Patients in general perceive dental care an invasion of private space, the oral cavity. The term "dental anxiety" did not have an exact definition in the literature, its covers a wide range of emotions from mild apprehension to extreme anxiety or dental phobia.

Endodontic therapies in particular are perceived as anxiety- and stress-producing procedures to be feared (1, 2).The presence of dental anxiety is not a problem only for patients but also for the dental practitioners themselves and sometimes can complicate the treatment (1, 3, 4).

During endodontic treatments patients are continuously exposed to auditory stimuli such as the metallic sounds of instruments, drill noises as well as disturbing sharp instruments and annoying rubber dams. Fear of suffocation due to the altered management salivation and swallowing, and the professional conversations of staff members, are all perceptions that are further emphasized especially if the patient(s) had previous negative experiences at the dentist's office. Sedation is used to control anxiety and pain sedation (4, 5).

One study has shown that fifty-one percent of patients who underwent endodontic treatment showed a positive interest in sedation if that option was available (6). There are different ways of administering sedation; and each method has its own benefit and risks. The level of sedation can be inconsistent because of the variability in absorption that affects the amount of active drug reaching the target organ, namely the central nervous system (7).

The current supporting Narrative Based Medicine that wants the re-humanization of medicine also draws from non-pharmacological sources (8-11). The relationship between music and medicine has been studied extensively, especially as regards the use of music in clinical practice. It is a very old tradition, which goes back to the classical world and the Middle Ages through various Western and Eastern cultural traditions (12, 13).

Steelman(14) reported that musical intervention was associated with decreased blood pressure (BP) in patients undergoing local anesthesia. Marwick (15) also reported that music therapy could induce relaxation, decrease BP, and normalize arrhythmias during an operation with local anesthesia.

Musical interventions have the additional benefit of decreasing exposure to fearsome noises during treatments (16). Musical interventions affect not only physiological domains of patient functions, such as BP, heart rate (HR), but also emotional domains, such as perioperative anxiety levels and pain thresholds (17). Many studies about the effects of Music Therapy have been done on children (18, 19). Our research concerned adolescents and adults.

The purpose of this study was to test the influences of music, as a non-pharmacological adjuvant, in terms of significant changes for systolic blood pressure (SBP), diastolic blood pressure (DBP) and beat rate (HR) before, during and after endodontic treatment, in a population with different levels of anxiety assessed with the Corah Dental Anxiety Scale (DAS).

Material and methods

Sample size determination

A total number of 100 patients (50 patients per arm) was evaluated to reject the null hypothesis of equality between patients listening to and not listening music in terms of systolic and diastolic blood pressure and heart rate on the basis of the following assumptions:

- power of approximately 90% in rejecting the null hypothesis of equality;
- expected means at baseline of 139 for systolic, 89 for diastolic and 85 for heart rate;
- expected means gain after music therapy of 120 for systolic, 80 for diastolic and 75 for heart rate;
- standard deviation of 15% from mean at baseline;
- overall significance level = 5% two-sided.

For the expected means at baseline the high/normal values of each parameter were considered adequate for the type of population and procedure.

The normal values of each parameter were used for the expected means gain after music therapy.

Study procedure

This single center, parallel-group, blinded participant physician study was conducted at the University Hospital (AOUC) of Florence. The study protocol was submitted and approved by the Ethics Committee of AOUC (SPE14.138 AOUC).

One hundred participants were recruited from among all patients scheduled for endodontic treatment at the Department of Endodontics University of Florence from October 2014 to February 2015. During the first visit, ethical approval was requested and granted, and informed consent was obtained from each patient. In case of patients under the age of 18 their parents gave their informed consent. Each patient recruited was examined and routine preoperative information with respect to the number of appointments, duration of the procedure and possible intraoperative and postoperative complications were given to all enrolled patients.

All participants were informed of the aim of the present study.

All root canal therapy procedures were performed in a standardized manner and limited to three (RP, LN, VG) experienced endodontists; they operated with the assistance of an undergraduate university student. All treatments were done under local anesthesia; the teeth were isolated with rubber dams, the duration of the treatment not exceed one hour.

The patients were randomly divided into two groups: patients who received root canal therapy listening to music and patients who received root canal therapy without listening to music.

Selection of music

The music selected for this study consisted of five tracks (1.Lotus; 2.Summer; 3.Signs; 4.White Flower; 5.Melody), composed by Stefano Crespan Shantam The music was played on instruments such as piano, guitar, synthesizers, and Eastern instruments, lake bansuri and tanpura flute, and it had been used for a previous study (20). The music was composed by referring Raga, scales based

on pentatonic intervals. The compositions are tuned to 432 Hz instead of 440 Hz, the standard general tuning for musical pitch.

Preoperative, intraoperative and postoperative questionnaire and measurement

An interviewer (NP) was instructed about the purpose of each question in order to help the participants if needed. She read the questions in a plain fashion so as not to convey any of her own personal biases. The questionnaire was anonymous and did not contain any information that might disclose the participant' identities. Cognitive/decisional impairments were the criteria for exclusion.

In the waiting room, before starting the endodontic treatment, the interviewer administered the Corah Dental Anxiety Scale (DAS) to the participants; the investigator supervised the process of completing the questionnaire (21).

A simplified 5-point-scale answering scheme, from 0 to 4 was devised for each question ranging from not anxious to extremely anxious.

In order to obtain the total score for the scale, the scores for each of the 4-item responses were summed. The total range from 0 to 20. Based on the results of the Corah’s DAS the patients were divided into four groups (22): no anxiety (score<4), mild (4-8), moderate (9-12), and severe (>12).

The participants were offered assistance if they encountered any problems when responding to the questionnaire.

Objective measurements in variations of vital signs were also recorded before local anesthetic injection, at the treatment midpoint and after the removal of the rubber dam.

Statistical analysis

Data were analyzed using SAS version 9.3 software.

As a preliminary analysis, diastolic and systolic blood pressure and heart rate were analyzed descriptively in order to numerically check if differences in terms of mean were present between the different anxiety groups at baseline and among patients listening or not listening to music during the root canal therapy.

A mixed linear model for repeated measures was used to measurements percentage changes in diastolic and systolic blood pressure and heart rate one at a time between baseline and therapy in the two experimental groups: patients listening and patients not listening to music.

Percentage changes were calculated as follow: $\{[(vt_i - vt_0) / vt_0]*100\}$ with t=(1,2), where vt_1 and vt_2 are values collected, respectively, during and after the root canal therapy and vt_0 is the value observed at baseline before the canal therapy. The mixed model includes as covariates term of music (listening/not listening), the anxiety level before the therapy assessed with the Corah Dental Anxiety Scale (DAS) and the time point, as covariates.

The MIVQUE0 method (Minimum Variance Quadratic Unbiased Estimation) was used to estimate the model parameters, since it does not require any particular assumptions on the data. The AIC (Akaike Information Criterion) was used to select the most appropriate variance/covariance matrix to be used in the model. The most commonly used matrices (i.e. Diagonal, Compound Symmetry, AR(1), Toeplitz, Unstructured) were tested and the one with the lowest AIC was selected.

Adjustment for multiplicity is not required according to European guideline CPMP/EWP/908/99 "Points to consider on multiplicity issues in clinical trials" where §2.1.1 clearly states that when two or more primary variables are needed to describe relevant treatment benefits, statistical significance is needed for all the primary variables and, therefore, no formal adjustment is necessary.

Results

A total of 100 patients, aged from 13 to 83 years, 46 men and 54 women, were included in the present study.

Descriptive statistical analysis of diastolic and systolic blood pressure and heart rate measured at

baseline are shown in figures 1,2, and 3 respectively.

No relevant differences were detected between the two experimental groups (listening and not listening to music).

All measurements of diastolic blood pressure, systolic blood pressure and heart rate taken during the canal therapy in the group of patients listening to music for all the anxiety levels. The cardiovascular percentage changes remained lower after the canal therapy except for: diastolic blood pressure in the mild to severe anxiety level groups and heart rate in the moderate anxiety level group where they were very similar between in all the patients. Results are shown descriptively in table 1.

Analysis of Variance (Table 2) obtained by the mixed linear model for repeated measurement, selecting the Unstructured variance/covariance matrix as the most appropriate, showed that the anxiety level at baseline did not statistically influence the cardiovascular percentage changes ($p > 0.05$) while the effect of music was statistically significant ($p < 0.001$). The time of reading the parameters (during or after the canal therapy) did not have an effect on the percentage changes with the exception of diastolic blood pressure as confirmed also descriptive statistics in Table 1.

Direct contrasts between patients listening or not listening to music are also given in Table 3 and clearly show that all the measured cardiovascular parameters decreased during and after the canal therapy in the group of patients listening to music ($p < 0.05$ and confidence calculated on the estimated means differences not containing zero as possible result).

Discussion

Dental care is considered an invasive treatment and source of anxiety for patients. The present study aimed to evaluate if the presence of music could help improve patient cooperation during endodontic treatment, reducing anxiety levels. In the present study music is only significant variable on cardiovascular changes. There were no significant changes between baseline, intra and post-operative anxiety levels.

According to many musicians and musicologists 432 Hz is the frequency closest to the natural human frequencies (23). The music used was characterized by slow rhythms and very melodies that can produce physical and emotional relaxation in listeners. These characteristics make the music " neutral" free from any emotional that other choices could have trigger and conditioned the patient' physiological responses. In the past Lai et al. (24) postulated that the choice of music could be an important factor on the variables of cardiovascular values. They observed a decreased level of anxiety in patients who had been listening to music during endodontic treatment but not any decrease in blood pressure that could be attributed to the musical selection. Listening to music that one generally likes could have a positive effect as opposed to music that is disliked or unfamiliar (25).

In this study the anxiety level of the subjects before the treatment was measured by the Corah Dental Anxiety Scale. This scale has been used in several studies (16, 22, 26) ; it is considered reliable for its simplicity of application, and ease of translation into the patients' native languages. In the present study 61% of the patients claimed not to be anxious, and only 4% said they were extremely anxious.

Measurements of vital signs indicate a strong influence of music on blood pressure and heart rate. Systolic blood pressure decreases at the treatment midpoint to rise slightly at the end in patients that listened to music during endodontic treatments. Diastolic blood pressure decreased at the treatment midpoint and increased, stabilizing at the end, in patients that listened to music during endodontic therapy. Heart rate decreased at the treatment midpoint, then rose slightly at the end in patients that listened to music during endodontic treatment. In addition to the tests, the patients who used music said that they felt relaxed, and that the music distracted them from the instrument noises and the voices of the medical staff.

The literature reports dental anxiety and dental phobia in surgical extractions, implant procedures and in young patient populations. Only a few studies have evaluated the level of anxiety and the different approaches available for the treatment of dental anxiety in adults, although the demand for

sedation in endodontics is high (6). The use of sedation has been shown to be useful in managing inferior alveolar block in patients with irreversible pulpitis (27). As reported in a previous study (24), listening to music during endodontic treatment could significantly reduce the level of anxiety at the end of the treatment, but not necessarily due cardiovascular parameters as also was borne out in this study.

The present study is one of the first articles investigating the effects of music distraction on dental anxiety during endodontic procedures (6, 24), the literature primarily reports on the use of music distraction in cases of dental surgery (16, 22). Therefore, this could be very interesting since endodontic procedures are among of the most common dental therapies.

References

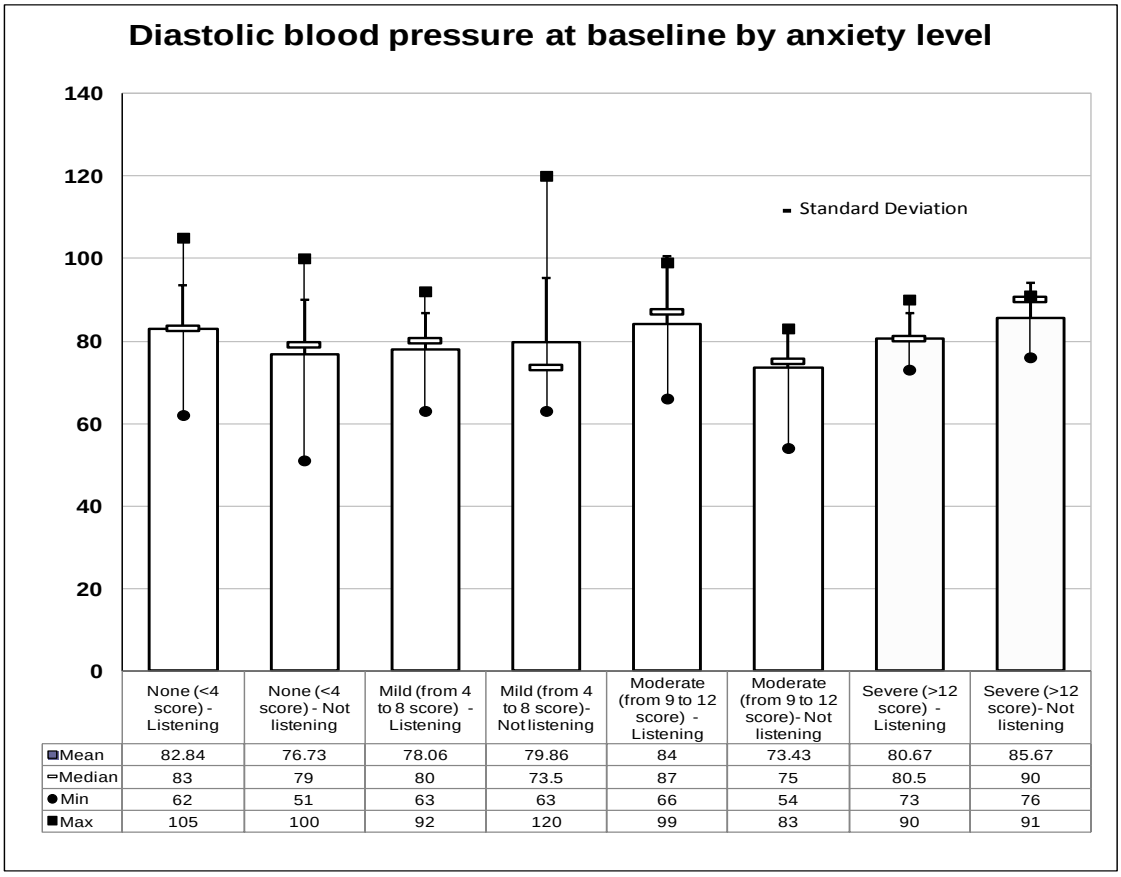
1. Chanpong B, Haas DA, Locker D. Need and demand for sedation or general anaesthesia in dentistry: a national survey of the Canadian population. Anesth Prog 2005;52:3–11.
2. LeClaire AJ, Skidmore AE, Griffin JA, Balaban FS. Endodontic fear survey. J Endod 1988;14:560–4.
3. Cooper CL, Watts J, Kelly M. Job satisfaction, mental health, and job stressors among general dental practitioners in the UK. Br Dent J 1987;162:77-81.
4. Dionne RA, Gordon SM, McCullagh LM, Phero JC. Assessing the need for anesthesia and sedation in general population. J Am Dent Assoc 1998;129:167-73.
5. Zanette G, Manani G, Favero L. Conscious sedation with diazepam and midazolam for dental patient: priority to diazepam. Minerva Stomatol 2013;62:355-74.
6. Hub YK, Montagnese TA, Harding J, Aminoshariae A, Mikel A. Assessment of patients' awareness and factors influencing patient demands for sedation in endodontics. J Endod 2015;41:182-189.
7. Malamed SF. Sedation: a guide to patient management, 5th ed. St luis: Mosby Elsevier, 2010.
8. Atterbury RA. The use of verbal relaxation therapy for sedation during dental therapy. Anesth Prog 1984;31:27-30.

9. Morse DR & Cohen BB. Desensitization using meditation hypnosis to control "needle" phobia in two dental patients. Anesth Prog 1983;30:83-85.
10. Jafarzadeh M, Arman S, Pour FF. Effect of aromatherapy with orange essential oil on salivary cortisol and pulse rate in children during dental treatment: A randomized controlled clinical trial. Adv Biomed Res 2013;2:10.
11. Tanja-Dijkstra K, Pahl S, White MP et al. Improving Dental Experiences by Using Virtual Reality Distraction: A Simulation Study, Slater M, ed. PLoS ONE 2014;3: e91276.
12. Lippi D, Roberti di Sarsina P, D'Elios JP, Music and medicine. J Multidiscip Healthc 2010; 3:137-141.
13. Marwah N, Prabhakar A R, Raju O S. Music distraction: its efficacy in management of anxious pediatric dental patients. J Indian Soc Pedod Prev Dent 2005;23:168-70.
14. Steelman VM. Intraoperative music therapy: Effect on anxiety, blood pressure. AORN J 1990;52:1026-34.
15. Marwick C. Leaving concert hall for clinic, therapists now test music's charm. JAMA 1996 275:267-8.
16. Kim YK, Kim SM, Myoung H. Musical Intervention Reduces Patients' Anxiety in surgical Extraction of an Impacted Mandibular Third Molar. J Oral Maxillofac Surg 2010;69:1036-1045.
17. Winter MJ, Paskin S, Baker T. Music reduces stress and anxiety of patient in the surgical holding area. J Post AnesthNurs 1994;9:340-3.
18. Hartling L, Newton AS, Liang Y, Jou H, Hewson K, Klassen TP, Curtis S. Music to reduce pain and distress in the pediatric emergency department: a randomized clinical trial. JAMA Pediatr 2013;167:826-35.
19. Bekhuis T. Music Therapy May Reduce Pain and Anxiety in Children Undergoing Medical and Dental Procedures. J Evid Based Dent Pract 2009; 9:213-214.
20. Modesti PA, Ferrari A, Bazzini C, Costanzo G, Simonetti I, Taddei S, Biggeri A, Parati G, Gensini GF, Sirigatti S. Psychological predictors of the antihypertensive effects of music-guided slow breathing. J Hypertens 2010;28:1097-103.
21. Corah NL. Development of dental anxiety scale. J Dent Res 1969;48:596.
22. Liau FL, Kok SH, Lee JJ, Kuo RC, Hwang CR et al. Cardiovascular influence of dental anxiety during anesthesia for tooth extraction. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2008;105:16-26.
23. www.wam.hr/sadrzaj/us/Cavanagh 440Hz.pdf.

24. Lai HL, Hwang MJ, Chen CJ, Chang KF, Peng TC, Chang FM. Randomised controlled trial of music on state anxiety and physiological indices in patients undergoing root canal treatment. J Clin Nurs 2008;17:2654–2660.
25. Lai HL. Music preference and relaxation in Taiwanese elderly people. **G**eriatr nurs 2004; 25:286–91.
26. Bodner E IancuI Recalling the threat: dental anxiety in patients waiting for dental surgery. Isr J Psychiatry Relat Sci 2013;50:61-6.
27. Stanley W, Drum M, Nusstein J et al. Effect of nitrous oxide on efficacy of the inferior alveolar block in patients with symptomatic irreversible pulpitis. J Endod 2012;38:565-9.

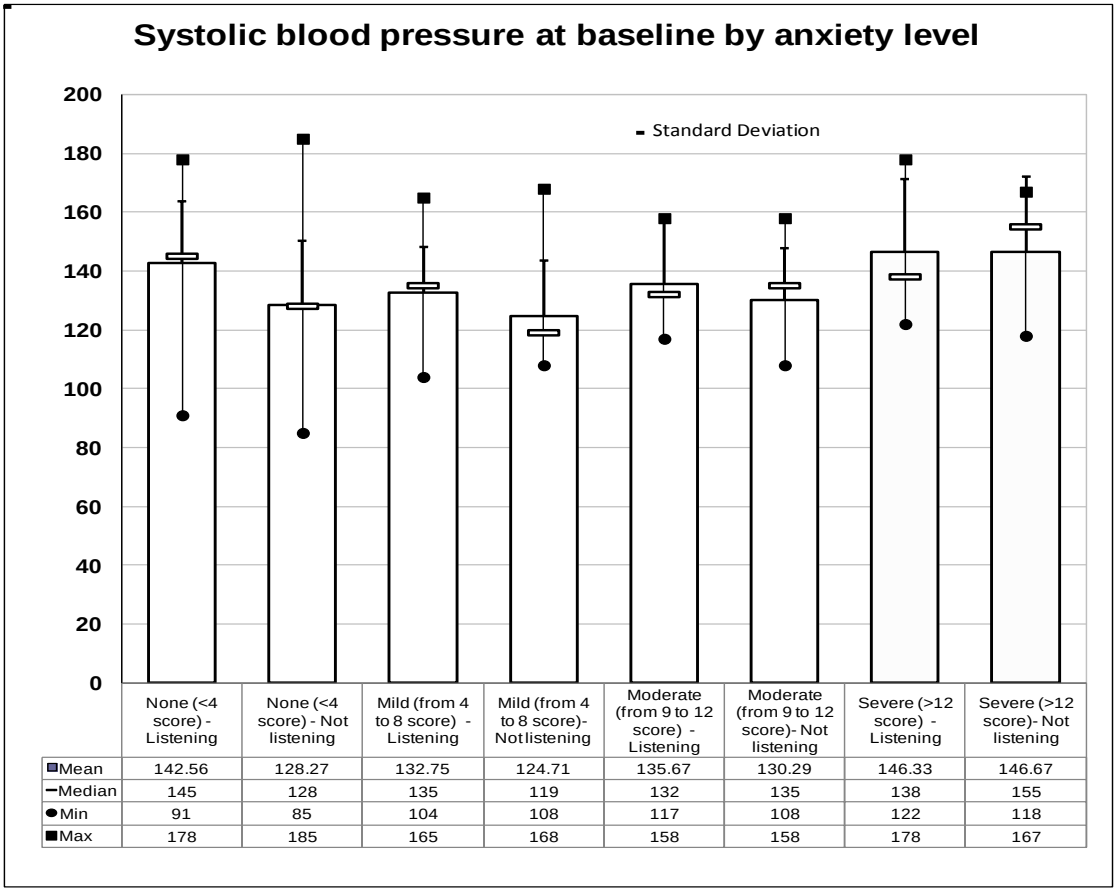
Figure

Figure 1: Diastolic blood pressure at baseline by anxiety level and grouped by patients listening and not listening music



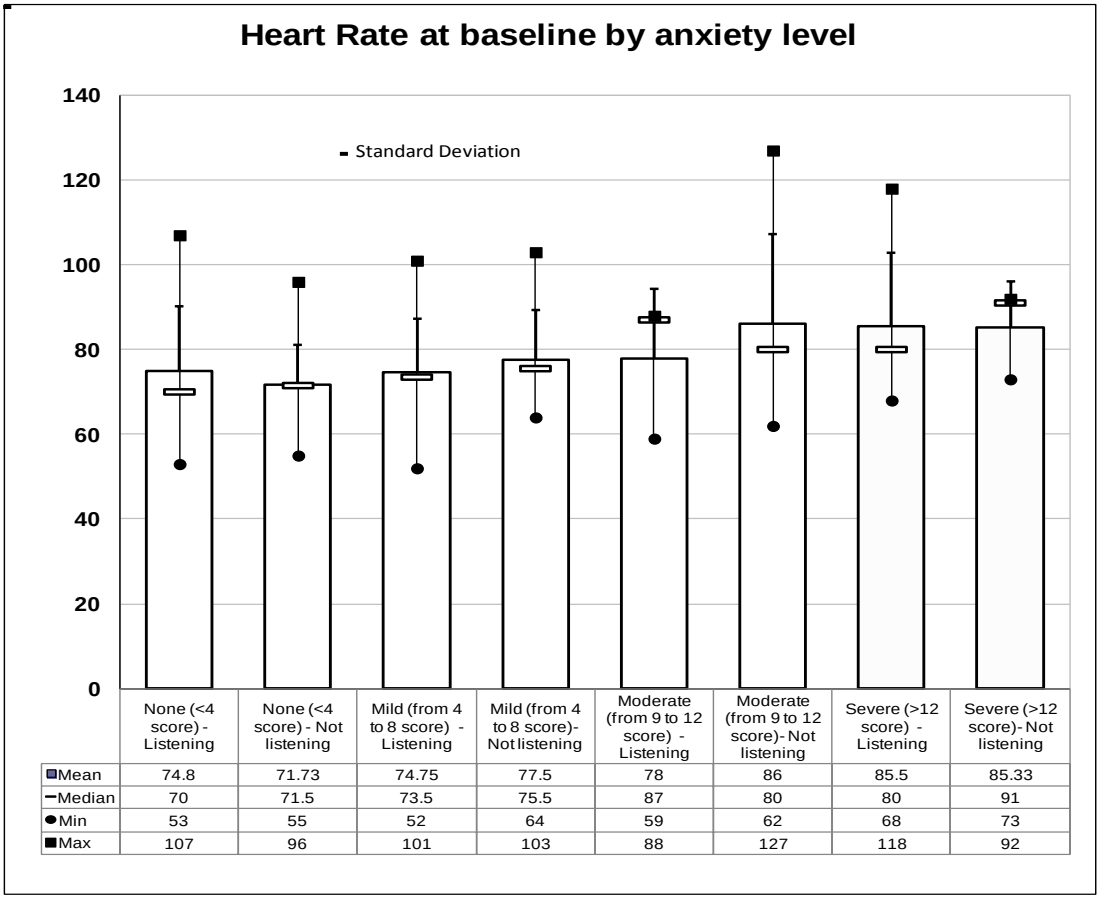
	None (<4 score) - Listening	None (<4 score) - Not listening	Mild (from 4 to 8 score) - Listening	Mild (from 4 to 8 score)- Not listening	Moderate (from 9 to 12 score) - Listening	Moderate (from 9 to 12 score)- Not listening	Severe (>12 score) - Listening	Severe (>12 score)- Not listening
Mean	82.84	76.73	78.06	79.86	84	73.43	80.67	85.67
Median	83	79	80	73.5	87	75	80.5	90
Min	62	51	63	63	66	54	73	76
Max	105	100	92	120	99	83	90	91

Figure 2: Systolic blood pressure at baseline by anxiety level and grouped by patients listening and not listening music



	None (<4 score) - Listening	None (<4 score) - Not listening	Mild (from 4 to 8 score) - Listening	Mild (from 4 to 8 score)- Not listening	Moderate (from 9 to 12 score) - Listening	Moderate (from 9 to 12 score)- Not listening	Severe (>12 score) - Listening	Severe (>12 score)- Not listening
Mean	142.56	128.27	132.75	124.71	135.67	130.29	146.33	146.67
Median	145	128	135	119	132	135	138	155
Min	91	85	104	108	117	108	122	118
Max	178	185	165	168	158	158	178	167

Figure 3: Heart rate at baseline by anxiety level and grouped by patients listening and not listening music



	None (<4 score) - Listening	None (<4 score) - Not listening	Mild (from 4 to 8 score) - Listening	Mild (from 4 to 8 score)- Not listening	Moderate (from 9 to 12 score) - Listening	Moderate (from 9 to 12 score)- Not listening	Severe (>12 score) - Listening	Severe (>12 score)- Not listening
Mean	74.8	71.73	74.75	77.5	78	86	85.5	85.33
Median	70	71.5	73.5	75.5	87	80	80	91
Min	53	55	52	64	59	62	68	73
Max	107	96	101	103	88	127	118	92

Table 1: Descriptive statistics [Mean (± SD)] for diastolic blood pressure, systolic blood pressure and heart rate during and after canal therapy by level of Anxiety

Variable	TimePoint	Level of Anxiety at baseline misured with the Cohen test	Mean (± SD)	
			Music: Yes	Music: No
Diastolic Blood Pressure	During canal therapy	None (<4 score)	-8.8 (± 8.086)	0.1 (± 10.26)
		Mild (from 4 to 8 score)	-8.72 (± 11.546)	-1.47 (± 9.164)
		Moderate (from 9 to 12 score)	-3.61 (± 13.353)	-0.8 (± 12.583)
		Severe (>12 score)	-10.4 (± 8.514)	1.03 (± 2.036)
	After canal therapy	None (<4 score)	0.52 (± 9.206)	9.2 (± 25.91)
		Mild (from 4 to 8 score)	3.12 (± 10.93)	2.17 (± 12.06)
		Moderate (from 9 to 12 score)	5.54 (± 8.908)	4.39 (± 16.672)
		Severe (>12 score)	0.57 (± 9.128)	0.16 (± 3.555)
Systolic Blood Pressure	During canal therapy	None (<4 score)	-9.11 (± 9.188)	0.36 (± 8.525)
		Mild (from 4 to 8 score)	-8.73 (± 7.481)	1.21 (± 7.487)
		Moderate (from 9 to 12 score)	-10.77 (± 10.61)	0.07 (± 12.992)
		Severe (>12 score)	-15.57 (± 7.338)	-1.87 (± 5.598)
	After canal therapy	None (<4 score)	-5.01 (± 9.599)	-1.29 (± 21.056)
		Mild (from 4 to 8 score)	-4.08 (± 10.076)	0.58 (± 7.688)
		Moderate (from 9 to 12 score)	-5.99 (± 11.225)	2.81 (± 13.918)
		Severe (>12 score)	-8.27 (± 9.186)	-2.67 (± 6.23)
Heart Rate	During canal therapy	None (<4 score)	-10.55 (± 8.006)	0.42 (± 7.385)
		Mild (from 4 to 8 score)	-7.54 (± 6.393)	0.64 (± 7.425)
		Moderate (from 9 to 12 score)	-10.28 (± 8.919)	-4.38 (± 8.555)
		Severe (>12 score)	-11.88 (± 10.118)	-4.85 (± 6.841)
	After canal therapy	None (<4 score)	-9.11 (± 9.599)	2.1 (± 15.894)
		Mild (from 4 to 8 score)	-3.2 (± 8.662)	-0.48 (± 10.893)
		Moderate (from 9 to 12 score)	-7.04 (± 8.28)	-9 (± 15.771)
		Severe (>12 score)	-10.11 (± 11.822)	-1.1 (± 3.795)

Table 2: ANOVA model: Fixed effect analysis for diastolic blood pressure, systolic blood pressure and heart rate

Dependent variable	Selected variance/covariance Matrix	Covariates	Num DF	F Value	Pr > F	Significant
Diastolic blood pressure	Unstructured	Music (Yes/No)	1	15.37	0.0002	Yes
		Level of Anxiety at baseline	3	0.14	0.9377	No
		Timepoint: During/after	1	28.98	<.0001	Yes
Systolic blood pressure	Unstructured	Music (Yes/No)	1	29.58	<.0001	Yes
		Level of Anxiety at baseline	3	0.94	0.4249	No
		Timepoint: During/after	1	2.64	0.1076	No
Heart rate	Unstructured	Music (Yes/No)	1	36.34	<.0001	Yes
		Level of Anxiety at baseline	3	1.46	0.2307	No
		Timepoint: During/after	1	1.81	0.1819	No

Table 3: ANOVA model: Contrasts (Listening music vs Not listening music) for diastolic blood pressure, systolic blood pressure and heart rate

Dependent variable	Music	Estimated Mean (Confidence interval)	Estimated Difference (Confidence interval)	T Value	Pr > |t|	Significant
Diastolic blood pressure	No	3.3561 (0.1128 ; 6.5994)	-7.5006 (-11.298 ; -3.7031)	-3.92	0.0002	Yes
	Yes	-4.1445 (-7.3986 ; -0.8903)				
Systolic blood pressure	No	0.1197 (-2.7632 ; 3.0025)	-9.3374 (-12.7461 ; -5.9287)	-5.44	<.0001	Yes
	Yes	-9.2177 (-12.1104 ; -6.325)				
Heart rate	No	-0.8305 (-3.4484 ; 1.7874)	-9.2755 (-12.3296 ; -6.2213)	-6.03	<.0001	Yes
	Yes	-10.106 (-12.7326 ; -7.4794)				